

Nurses Preparedness for Disaster Management in Lampung Province, Indonesia

¹Tiara, ²Earnporn Thongkrajai

¹Student, Master of Nursing Science, Faculty of Nursing, Khon Kaen University, Thailand

¹Lecturer in School of Health Science Muhammadiyah Pringsewu, Lampung, Indonesia

²Associate Professor, Faculty of Nursing, Khon Kaen University, Thailand

Email: tiarayudi2@gmail.com

ABSTRACT

Indonesia has 11 categorized as disasters namely: earthquake, tsunami, volcano eruption, flood, drought, hurricane, landslide, technology failure, epidemics and outbreak of disease, social conflict and terrorism. Disaster preparedness is a very important role for all health professions particularly in nurses as it has a great impact on individual, family and community health. This descriptive study aimed to investigate nursing preparedness with regarding to their level of knowledge, attitude and skills for disaster management. The study was carried out among 136 selected nurses in three hospitals and a community hospital in Lampung Province, Indonesia. The data collection tools used included Demographic Data and Working Information Questionnaire (DDWIQ) and Nurses Preparedness Evaluation Tool (NPAT) modified from the work of Khalaileh (2009). Results showed that nursing preparedness for disaster management according to knowledge, attitude and skills were at moderate levels although it seemed that the lowest score of all was is skill component. There were some factors that appeared to have association with levels of knowledge, attitude and skills in preparedness for disaster management i.e.,: (1) There were associations between educational background, experience for caring patient and knowledge of nurses for disaster preparedness (p -value <0.01 and <0.02); (2) There were associations between educational background, experience in caring patient in disaster and attitude (p -value <0.01 and <0.00); (3) There were associations between length of working years, number of additional training and nursing skills for disaster management (p -value <0.02 and <0.006). The findings suggest further training and equip all nurses in this area related to disaster management by preparing them during their basic training as well as on the job training.

Keywords: Disaster, Nurses Preparedness, Knowledge, Attitude and skills

I. INTRODUCTION

A disaster is an event that disrupting the normal circumstances and cause impacts to society and the environment (World Health Organization, 2007). The number of disaster increased 60% in decade (1997-2007)[1] (WHO, 2007). The number of natural disaster increased in 1970-2014 was 11.985 events of which 5.139 in Asia and the Pacific (Asean Development Bank, 2005)[2]. Indonesia is part of the Pacific Ring of Fire which is a series of active volcanoes in the world. In 1927 appeared a new Island volcano, named Anak Krakatau Mountain (Child of Krakatau). The role of the nurse for disaster is the centre of the front in health services have a responsibility and role to handling patients emergency daily. Disaster preparedness is have priority for health providers because disaster can happen anytime[3] (Rogers, 2007). As the largest number in the health care provider, nurses have a play an important role in disaster management.

Nurses not only are able to respond the emergencies but also do have a right to the needed preparation for effective responses for disaster management with their knowledge, attitude and skills[4] (Wisniewsky, 2004). Nurses who have prepared with their knowledge, attitude and skills regarding to disasters can play important role and cope better when occurring⁹. Stanley (2005)[5] stated that the nurses who have qualification of assessment skills, communication, priority settings, collaboration, and they are also be a critical thinkers

who can make essential decisions in emergency conditions. Previous research showed that 80% of the nurses was not fully prepared to respond disaster and only 20% of the nurses was prepared adequately[6] (Leodoro, 2015).

The nurses need more education in disaster management, most importantly in their roles during responding to disasters. Nurses perceived themselves as not well-prepared but they are willing to improve their knowledge, skills and attitude in preparedness of disaster management if educational opportunities are provided. Most of nurses agreed knowledge, skill and attitude regarding the preparedness of disaster management are very important.

II. OBJECTIVE OF THE STUDY

The aimed of this study was to investigate the levels of nurse's preparedness in accordance to knowledge, attitude and skill in disaster management in Lampung Province, Indonesia.

III. METHOD

A. Design

A descriptive cross-sectional survey was used to explore the level of nurses' preparedness.

B. Setting and Sample

The participant was selected from randomized sample of three hospital and one primary care unit. The total sample in

this study are 136 sample nurses with inclusion criteria include : Nurses who had at least diploma degree, had at least 1 year work experience, professional or register nurse who work full time and agreed to be participated. All nurses who met in the inclusion criteria were invited to participate.

C. Data collection and Research Instruments

Data were collected through self-administered questionnaires using NPAT (Nurse Preparedness Evaluation Tool) between February to March 2017. This instrument was validated by four experts. The Cronbach's alpha coefficient was 0.95. The scale of this instruments from 1 to 4 (strongly agree to disagree).

D. Data Analysis

The data in this study was analyzed using the statistical package for social sciences (SPSS) 20 program with the statistically significant level at 0.5. The analyses included demographic data of respondents and the level of nurse's preparedness in on disaster management.

IV. RESULTS

Table 1. Level of nurses preparedness in accordance to knowledge, attitude and skills

Variables	Level	$\bar{X} \pm SD$
Knowledge	Moderate	31.3 \pm 0.74
Attitude	Moderate	34.2 \pm 0.50
Skills	Moderate	26.6 \pm 0.78

At the time data collected was conducted the population of nurses numbered approximately 136 nurses. Results show that nursing preparedness for disaster management according to knowledge; attitude and skills are at moderate levels although it seemsthat the lowest score of mean score is nursing skills.

Table 2. Association between factor related and nurse knowledge, attitude and skills on disaster preparedness

Variables	Factors	<i>p-value</i>
Knowledge	Educational background	0.01
	Experience	0.02
	Educational background	0.01
Attitude	Experience	0.00
	Length of working	0.02
	Training	0.06

There are association between educational background, nurses experience in caring patient and knowledge of nurses

for disaster preparedness (p -value <0.01 and <0.02), There are association between educational background, experience in caring patient in disaster and nurse attitude (p -value <0.01 and <0.00). There are association between nurses who has been working longer, training and nursing skill on disaster management (p -value <0.02 and <0.006).

V. DISCUSSION

In this part will be explain in four parts according to the research objective namely (1) Demographic characteristics of nurses (2) The level of nurses preparedness in accordance to knowledge, attitude and skill for disaster management (3) Association between demographic data and nurses preparedness.

A. Demographic characteristics

The majority of nurses who are married is (84.6%) and more than half of the sample is (64.7%) female, in Indonesia the number of nurse female more than male. The women are still majority in nursing field in Indonesia, although one-third of them is male. Most of the nurses are aged 30 - 40 years old (44.1%), and one-fourth of them (25.7%) is 40 years old.

The respondents who have no experience in disaster is (52.9%). Regarding length of working experience, nurses who have been working for 5-10 years is (48.5%). However, more than half of the respondent had nursing education at diploma degree (52.9%). Regarding to training one-fourth of nurses attending Basic Training Life Support is 27.2%. However, there are nurses who have never attended any training is (12.5%), only 8.8% of nurses have attended disaster management training.

B. Training and education

The finding of this study show that more than half of the respondents had an educational background at the diploma level were (52.9%) respondent, and only (8.8%) had master level. It means that the majority of respondent had low educational background. In Indonesia diploma level is the low level in nursing education.

The subjects who had formal education at the diploma degree possibly have a poor knowledge to prepare their skills in disaster response. According to Chan (2009) [7] found that the nurses in diploma degree had poor of knowledge and skill than bachelor, master or doctoral students in clinical management system.

However, Lampung province is one of the most vulnerable province to natural disaster in Indonesia, but there are more than half of nurses did not have experience in caring for patient with disaster (52%) and there is (13.2%) nurses never attended any training on disaster management. Training for nurse is the important aspect to handling the patient with disaster.

C. Experience in caring patient with disaster and length of working

Previous work experience in critical situations requiring nurses to maintain their readiness specialized knowledge and skills[8] (Nasrabadi, 2007). The nurses who had previous experience can guide nurses to increase their confidence on disaster management.

Nurses should be equipped with their knowledge and skills to work on disaster. However, in this study more than half of nurses did not have half experience in disaster (52.9%).

Suserud and Haljamie (1997)[9] stated that the experience will be related to readiness for action in response to the disaster. A readiness measure to have the feeling that this set is found by a nurse who has previous experience is not certain experienced nurses.

This study also found that near half of nurses who have been working for 5-10 years is (48.5%). Nurses who have longer work experience might be more prepared to handling patient with disaster.

D. Level of nurses preparedness in accordance to knowledge

In this study, the level of knowledge of nurses for disaster management was found to be at moderate level. The finding showed that more than half of nurses had moderate level of knowledge for disaster management is 46.3 %. This finding can be explained with the educational background of the respondents had an educational background at the diploma level is 54.4%.

Educational level of the respondents might have played an important role in the results. Diploma level might have indicated a limited existing knowledge for tsunami responses usually dealing with complicated problem such as insufficiency of skill in seeking information and limited capability to develop further advanced clinical skills in responses to complicated health problem, nurses who had formal education diploma level might have a lack of knowledge to prepare their skills in disaster responses.

It was also found that there is 27.2% nurses had low level of knowledge regarding to disaster preparedness. Based on Indonesian National Nurses Association the diploma level is the lower level in the nursing educational system and the curricular program starts with the 3-year. The bachelor level have to increase their knowledge. Continuing education should be held for the nurses [11](Husna, 2011). In line with Chan (2009) nurses whose education were the diploma level showed that lower level of knowledge and skill than bachelor, master or doctoral students in clinical management system.

The second reason that might have influenced the moderate level of knowledge of nurses is experience in caring for patient patients. More than half of respondents 52.9 % did not have experience in caring with disaster preparedness. In this study found that there is association between education and knowledge for disaster management were p -value < 0.001 .

This result can be explained that many factors that contributed for the level of knowledge of nurses' preparedness for disaster management. Supported study by Rahmawati (2009) [12]

reported perceived preparedness of knowledge in caring for patient with disaster was at moderate high level.

Grant (2002) [13] cited that nurses should be knowledgeable about their role during disaster; this may include triage, coordination of the first aid response team and direct care to victims of the emergency. As licensed health care professionals, they should respond to all serious events that threaten the health, safety or well being of a population. Contrary study by Husna (2009) reported that training and education was not significantly correlated with knowledge. It was found that the nurses were not trained and had limited direct experience in acute response care for caring patient with disaster.

In the other hand (Gould et al, 2007 cited in Husna 2011), stated that Education and training provide opportunities for the development and application of knowledge and skills to meet the demands of current roles and functions needed for effective and efficient disaster responses.

This finding shows that the low of mean score of the nurses preparedness accordance to knowledge was "identifying risk and taking suitable action to prevent a disaster" which means that the nurses need to increase their knowledge how to reduce the risk and how to prevent disaster in the future. This finding can be explained that there are 17 (12.5) nurses never attended training and more than half of respondents were 72 (52%) didn't have experience in caring patient with disaster.

The study by Johnson (1999) pointed that nurses who have experienced in disaster management such as transferring patient to the hospital will be better than nurses who didn't have experienced. The nurses had learned a better technique of transferring that reflected into there was a correlation between experience nurses in handling patients with transferring technique performance.

According to Fung et al. (2009), reported that there is a lack of understanding regarding nurses' perceptions of their roles and preparation for providing safe and effective care during and after a disaster. Thus, nurses should gain more knowledge regarding disasters and emergencies. On the other hand Burstein (2006) explained that self-preparedness is very important for future disaster occurrences. Rowney & Barton (2005), stated that disaster preparedness will determine their successfulness in responding and recovering from disastrous events.

E. Level of nurses preparedness in accordance to attitude for disaster management

In this study the attitude of nurses for disaster management at moderate level is (44.9%) followed by nurses who had low level is (39.7%) and high level is (15.4%) nurses. The moderate level of nurses attitude for disaster management may indicate that more than half of respondents didn't have experiences with disaster is (52.9%). According to Suserud and Haljamie (1997) stated that the experience will be related to readiness for action in responses to the disaster, nurses who

had previous experience can guide nurses to increase their attitude and confident.

The lowest mean score of nurses preparedness accordance to attitude was “training and education related to disaster preparedness can increased self confidence and a better understanding in disaster responses. It means nurses should increase their training and education related to disaster management.the findings of this study suggest that training program on emergency and disaster care is very important to improve the knowledge of nurses.

F. Level of nursing skills on disaster preparedness

The total mean score of nurses preparedness of skills was 2.01 (SD 0.77) categorized as a moderate high level. It can be conclude that the skill of nurses for disaster management was still insufficient. Some factor that influenced moderate high level are working experience and training for disaster management.

The lowest means score of nurses preparedness accordance to skill was “sorting patient with psychological problems”. The impact of disaster not only physical impact but also psychology problem .Mental health or psychological problems may also be affected after disaster. The effects of a volcanic eruption on society may last far beyond the eruption itself.

G. Association between demographic data and nurses knowledge on disaster preparedness

The findings shows that there were statistically significant between educational background with nurses knowledge on disaster preparedness ($p=0.001 <0.05$). According to (Kak et al 2001 cited in Dewi, 2011) knowledge is defined as a recall of recognitionof learned material which comes through processing a combination of understandingthe facts and obtaining several ways of understanding, such as education, experienceand so forth. The knowledge influences the skill as the combination of action andreaction that the individual performs according their previous understanding of thefacts and as the function of both knowledge and strategies to apply such knowledge.

Therefore, knowledge and skills come together and intersect each aspect which could be explained as one combination of competency. According to the results of the study the positive association between education and knowledge on disaster preparedness can be explain due to more than half of nurses had an educational background at the diploma level was 52%, only 8.8% nurses had high educational background as master level. It means that the majority of nurses in this study had limited level of education.

In Indonesia diploma level is the low level in nurse education. Some factors including subjects’ working area, working experience, disaster experience, nursing education, and training and education were contributed to the knowledge of nurses.

It was found that there were associations between experiences in caring patient with knowledge on disaster management (p -value 0.02). According to Chapman (2008), stated that experience in disaster training and having a direct experience of a disaster may also help to upgrade the knowledge and confidence of the nurses to respond to disasters.

The level of nurses preparedness of knowledge was at moderate level as well as the nurses preparedness of skills means that the nurses were less prepare for their knowledge. Interestingly, nurses who had no experience in caring patient with disaster is (52.9). It means that nurses who had experience in disaster has lack significantlyaffect on their knowledge regarding to disaster preparedness.

H. Association between demographic data and nurses attitude on disaster preparedness

It was found that there were association between educational background with attitude of nurses for disaster management were p -value (<0.01) . It can be explain that if nurses had higher educational level they would have better attitude toward disaster preparedness. In line with Fatma (2014) stated that the adequacy of knowledge and practice, and portraying positive attitude was driven by being involved in disaster response and attending disaster-related education. Supported study by Sharmaet et. al (2016), found that hospital staff including nurses, in general, was found to be sensitive toward disaster management, but their level of awareness regarding the same was low. Nurses were found to be significantly more informed than other staff whereas doctors werefound to have the most positive attitude toward disaster management. Low knowledge regarding disaster management amonghospital staff, as shown in this study, can have catastrophic consequences.

In this study also found that there are association between experience in caring patient with disaster and attitude of nurses (p -value 0.00). In line with Nasrabadi (2007) reported that nurses who had previous experience regarding to disaster preparedness they will be more confidence and had good attitude than nurses who had no previous experience in caring patient with disaster.

I. Association between demographic data and nurses skills on disaster preparedness

In this study found that there are association between working experience and skill of nurses on disaster preparedness p -value <0.01 . According to Stanly (2005) explained that nurse who had experienced are better prepared than nurses with little experience in term of skills. Experience is considered as the basis of preparedness for core competences.

In this study the majority of nurses had working experience 5-10 years (48.5%) were 23.5% of nurses had moderate level of skill regarding to disaster preparedness and

only 14.0% nurses had high level of skill on disaster preparedness. However, nurses who had working in the hospital >10 years (26.5%) were one-third of nurses had high level of skill on disaster preparedness. This finding confirmed that if nurse has time of working experience in hospital they will have high level of skill on disaster preparedness.

In this study found that there were association between training and skill of nurses on disaster preparedness (p -value <0.02). According to Chapman and Arbon (2008) explained that the training or education for disaster preparedness include Basic First Life Support, Triage, Health Assessment, Counseling, Communication Training, and Decontamination Training that are very important for hospital staff in caring casualty victims. They also showed that nurses who received training or education related to disaster preparedness have positive results such as increased self-confidence and get a better understanding of their role in disaster response.

In summary, the findings showed that there were some factors, including clinical experience, working experience, training and education were found to have association with nurses' perceived preparedness of knowledge, attitude and skills.

VI. RECOMMENDATION

These results due to the nurses had less continuity in attending training and education related to disaster preparedness and the majority of nurses had diploma level. A Training and education program is important for nurses who work in hospital or Puskesmas. The finding also showed that the participants had lowest mean score knowledge on identifying risk and suitable action to prevent disaster, its mean that nurses need to improve their knowledge and increase their training to prevent disaster.

VII. LIMITATIONS

The study was conducted among the nurses with only measured nurses preparedness in accordance to knowledge, attitude and skill regarding management disaster without which mean that this study cannot be generalized to other hospital staff nurses related to their preparedness.

VIII. CONCLUSION

This study highlights limitation of nurses preparedness in accordance to knowledge, attitude and skills. There are association between related factors and disaster preparedness. Nurses play vital role in health care systems throughout in the world. They should fully prepare on disaster management.

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